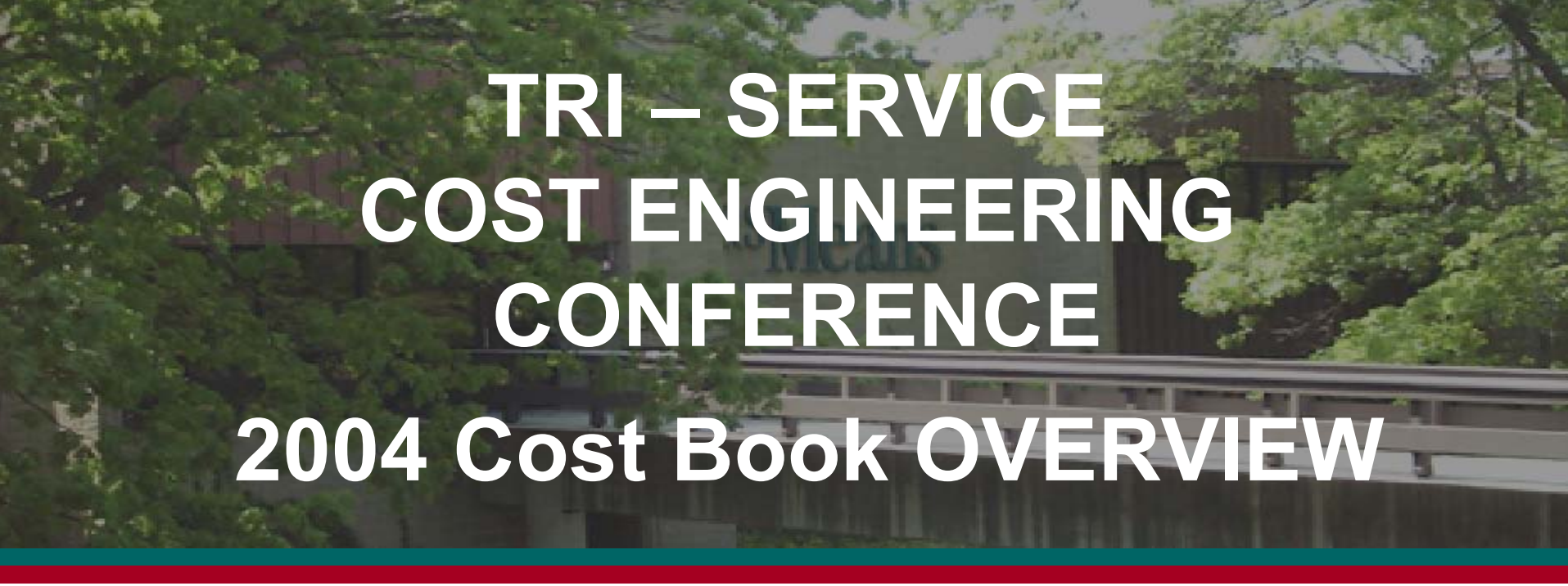

TRI – SERVICE COST ENGINEERING CONFERENCE

2004 Cost Book OVERVIEW

RSMeans

Reed Construction Data

June 5, 2003

A Division of Reed Business Information

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TRACES 2004 Cost Book Project Requirements

- Convert Task ID's and Title ID's to MF95
- Revise English & Metric Descriptions
- Convert Modifier ID's with accompanying ranges to MF95
- Modify 2001 UPB Cross Reference Table to MF95
- Add and Delete Lines
- Material pricing within acceptable maximum differential
- Unit cost pricing within a 10% adjusted variance
- Quality assurance program

Major Project Components

- Technology
- Cost Methodology
- Quality Assurance

#1 Technology

- Construction Cost Database (CCD) on SQL Server 7.0
- Standard business software:

  Microsoft Office 2000

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#2 Material Cost Methodology

- 3 Sources ±
- Different Geographical Areas
- Ideally ± 25% from Lowest
- Use RSMeans Standard Pricing Methodology

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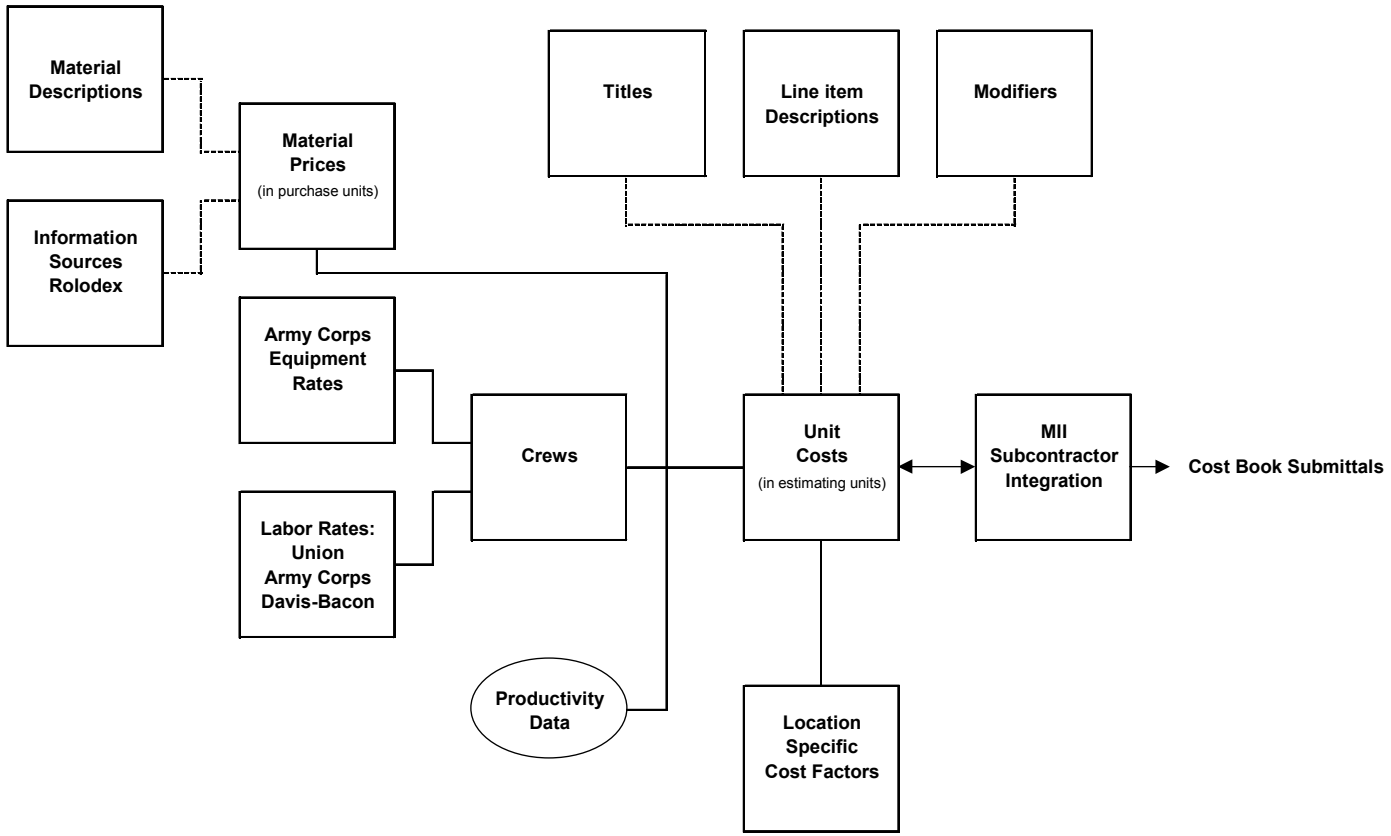
#3 Quality Assurance

- Database standards for consistency and completeness
- Process for tracking variance
- Comments Log/Dr. Checks
- Benchmark Comparison Tests

RSMeans/TRACES Cost Book Database Schematic (Part1)



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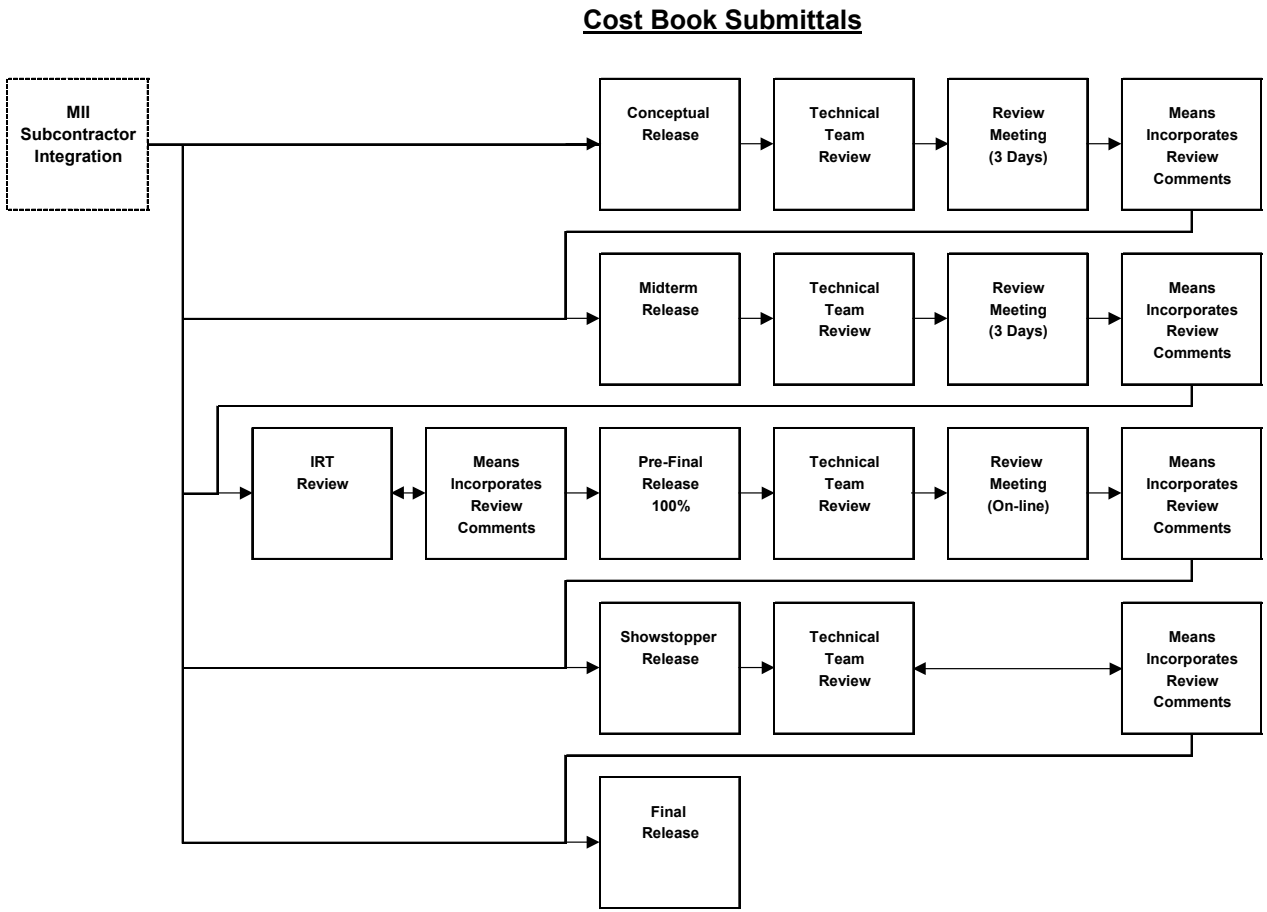
RSMeans/TRACES Cost Book Database Schematic (Part 2)



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CSI MasterFormat 95

02300 Earthwork

-315 Excavation and Fill

Backfill
Borrow Excavation
Compaction
Excavation
Fill
Trenching

Includes

Extraction, removal, and disposal of material and structures from roadway, cuts, channel changes, foundations and other areas.

Disposal of material by incorporation in embankment fill and backfill.

May include

Granular sub base for slabs on grade.

Earthwork construction, shaping, and finishing.

See also

02330 for embankment

03300 for concrete slabs on grade

TRACES Titles Structure

Level	Title Description
3	Excavation and fill
4	Backfill
5	Backfill, general
6	By hand
6	Dozer or front end loader
5	Backfill, structural, dozer or front end loader
6	From existing stockpile
6	Backfill around foundation

TRACES Titles Structure

Level	Title Description
4	Compaction
5	Riding
6	Vibrating roller
6	Sheepsfoot or wobbly wheel roller
5	Steel wheel tandem roller
5	Self propelled roller
5	Walk behind, vibrating plate
5	Air tamper
5	Water

TRACES Titles Structure

Level	Title Description
4	Excavation
5	Rock excavation
6	Drilling only
7	Rock bolts
7	Pre-splitting
7	Quarry production drill
7	Quarry production drill, rocks
6	Blasting only, rock
7	Shallow trench

TRACES Titles Structure

Level	Title Description
7	Boulders, load and detonate
7	Pre-splitting, load and detonate
7	Explosives
7	Detonator wire
7	Primacord
7	Fuel oil for blasting
7	Blasting for quarry production
6	Ripping
7	Air hammer

TRACES Titles Structure

Level	Title Description
7	Dozer with double shank ripper
7	Dozer with single shank ripper
5	Excavate and fill
6	Dozer
5	Excavate and load
6	Hydraulic excavator
7	¾ CY
7	1 ½ CY
7	2 CY

TRACES Titles Structure

Level	Title Description
7	3 ½ CY
7	5 CY
6	Wheeler loader
7	¾ CY
7	1 ½ CY
7	3 CY
7	5 CY
7	7 CY
6	Track loader

TRACES Titles Structure

Level	Title Description
7	1 ½ CY
7	2 ¾ CY
7	3 ¾ CY
5	Excavating, bulk, dozer
6	Open site
7	65 HP
7	90 HP
7	120 HP
7	140 HP

TRACES Titles Structure

Level	Title Structure
7	200 HP
7	215 HP
7	335 HP
7	460 HP
7	700 HP
7	Rough grade
6	Excavating & shaping with small dozer
5	Excavation, bulk, drag line
6	Bucket drag line

TRACES Titles Structure

Level	Title Structure
7	¾ CY
7	1 ½ CY
7	3 CY
5	Excavation, bulk, scrapers
6	11 CY elevating scraper
6	14 CY (SP) scraper with ¼ push dozer
6	Push loaded self propelled scraper
7	9 CY
7	16 CY

TRACES Titles Structure

Level	Title Structure
7	25 CY
7	35 CY
7	43 CY
6	Machine excavation for roadway
5	Grading for structures & slabs
6	Semi–grade
6	Fine grade
5	Excavating, structural
6	Hand

TRACES Titles Structure

Level	Title Structure
7	Pits to 6’ deep
7	Pits to 2’ deep
7	Pits to 2’ – 6” deep
6	Hand trimming and grading
6	Dozer
5	Hauling, loose cubic yards
6	Highway haulers, no loading included
7	8 CY
7	12 CY

TRACES Titles Structure

Level	Title Structure
7	16.5 CY
6	Off highway haulers, no loading included
7	26 CY
7	40 CY
6	Truck 12 CY, with loading

TRACES Titles Structure

Level	Title Structure
4	Fill
5	Borrow

TRACES Titles Structure

Level	Title Structure
4	Trenching
5	Excavating, trench or continuous footing (BCY)
6	Excavate with tractor loader/backhoe
6	Excavate with gradall
7	1 CY
7	1 ¼ CY
6	Excavate with hydraulic excavator
7	½ CY
7	¾ CY

TRACES Titles Structure

Level	Title Structure
7	1 CY
7	1 ¼ CY
7	1 ½ CY
7	1 ¾ CY
7	2 CY
7	2 ½ CY
7	3 CY
7	4 CY and 5 CY
6	Excavate by hand

TRACES Titles Structure

Level	Title Structure
7	Wheel 300’ to pile
7	To 2’ deep, piled only
7	To 2’ – 6” deep, piled only
6	Trench box rental
5	Excavating, utility trench, common earth
6	Chain trencher, operator walking
6	Fly wheel trencher
6	Chain trencher, operator riding
6	Cable/wire burial, incl exc/bckfill
5	Excavating, utility trench, plow

Unit Price Descriptions

MF95 Line #	Industry Name	Descriptor	Quantitative Descriptor	Dimensions	Construction Method or Spec.	Includes	Excludes	Exceptions
026301002160	Piping	storm drainage, corrugated metal pipe, galvanized and coated, bituminous coated with paved invert.		20' lengths, 14 ga., 30" diameter			excludes excavation and backfill	
050900800380	Anchor bolt	L-type, plain steel		1" dia x 30" L		incl nut & washer		
061608000100	Sheathing	plywood on roof, CDX		1/2" thick				
081102001060	Doors	commercial, steel, flush, full panel, hollow core		18 ga., 2'-4" x 7'-0" x 1-3/4" thick				
151076202302	Pipe	steel, black, welded		.375" wall, 12" diameter	A-53 gr. A/B	includes hangers		
151101602950	Valves	bronze, gate, non-rising stem, soldered	125 psi	1"				
164108003000	Safety switches	heavy duty, 3 pole, nonfusible	240 volt, 30 amp		NEMA 1			

Senior Oversight Team

Phil Waier	*Principal Cost Engineer & Program Manager*
John Ferguson	*Quality Oversight Team Leader*
Steve Plotner	*Product Development Team Leader*
Jayne Talmage	*Contractual and Project Controls*
Tom Dion	*Information Technology Team Leader*
Roger Grant	*Manager Product Development*

Monitoring & Control

- Project Management Plan
- Quality Management Plan
- Monthly Reports
- Project Delivery Model & Peer Review
- Performance Management Scorecard

Means Consulting Project Delivery Model

- Streamline timely implementation
- Maintain quality and consistency
- Decision support to evaluate effectiveness
- Project Start to initiate projects with 30% and 60% reviews
- Metrics including Client Report Card

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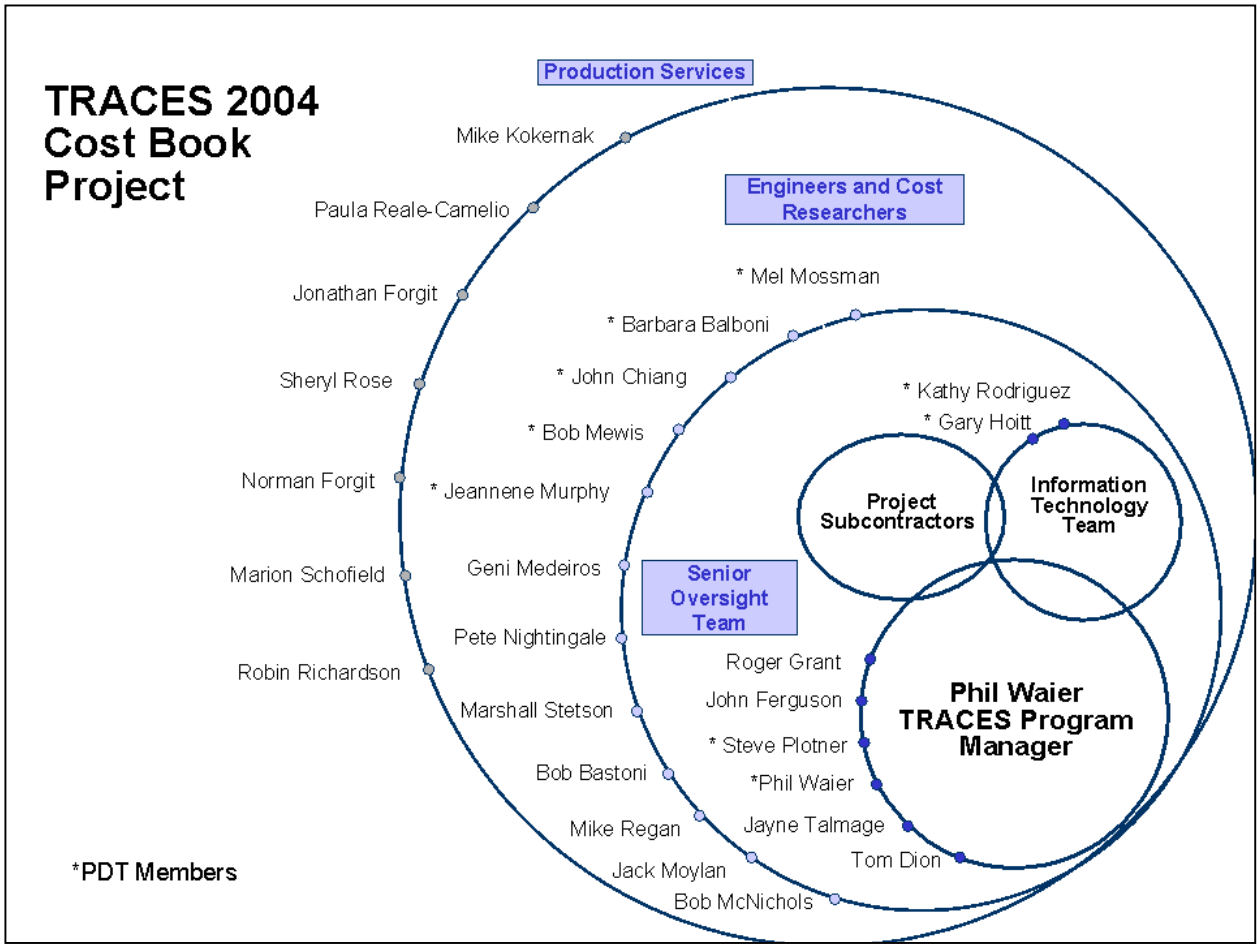
Means Project Teams



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Roles & Responsibilities Quality Management

QOT

John Ferguson, Tom Dion, Robert Gair

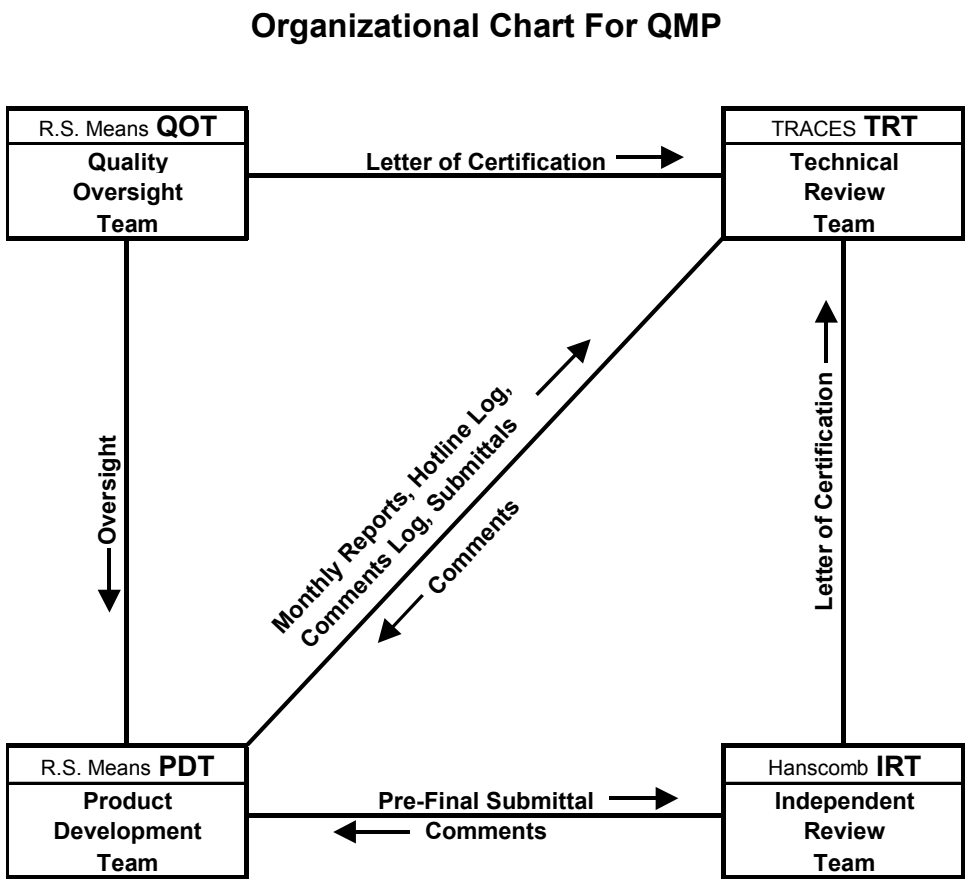
IRT

Hanscomb Associates

Product Development Team

Steve Plotner, Gary Hoitt, Kathy Rodriguez, Means Engineers

Organizational Chart For QMP



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Internal Quality Initiatives

- Exception Reports: statistical tests of the database
- 10% Unit Price variance report
- Traces Comment Log

External Quality Initiatives

- IRT Review of 550 lines
- $10 Million Building comparison variance report
- Cost Consultant Network
- ENR Benchmark comparisons
- Hot Line Analysis

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